

(FILE 'HOME' ENTERED AT 15:53:45 ON 31 DEC 2002)

FILE 'AGRICOLA, CAPLUS, BIOSIS, EMBASE, USPATFULL' ENTERED AT 15:54:01 ON 31 DEC 2002

L1 488 S GLUCANASE (P) PLANT# (P) (TRANSGENIC OR TRANSFORM?)  
L2 323 DUP REM L1 (165 DUPLICATES REMOVED)  
L3 8448 S MAHER?/AU  
L4 3 S L3 AND L1  
L5 2 DUP REM L4 (1 DUPLICATE REMOVED)

=> d l2 ibib ab 300-

YOU HAVE REQUESTED DATA FROM 24 ANSWERS - CONTINUE? Y/(N):y

L2 ANSWER 300 OF 323 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1993:621539 CAPLUS  
DOCUMENT NUMBER: 119:221539  
TITLE: Genetic engineering and plant breeding, especially cereals  
AUTHOR(S): von Wettstein, Diter  
CORPORATE SOURCE: Dep. Physiol., Carlsberg Lab., Copenhagen Valby, DK-2500, Den.  
SOURCE: Food Reviews International (1993), 9(3), 411-22  
CODEN: FRINEL; ISSN: 8755-9129  
DOCUMENT TYPE: Journal; General Review  
LANGUAGE: English

AB A review with 41 refs. Over the last 5000 yr, cereals have been bred for food, feed, and beverages by selection of spontaneous mutations and random hybrids. Since the turn of the century, crosses with defined parents, and since 1927 artificially induced mutations, have been used to create variability on which selection of new varieties is based. It is pointed out that hybrid corn and transfer of rust-resistant genes from wild species into chromosomes of bread wheat was preceded by decades of basic research. Genetic **transformation** is an addnl. tool for the breeder to introduce novel genes in a rational manner and will complement but not replace the existing efficient breeding methods. Genetic **transformation** has been demonstrated in maize, rice, and wheat, while techniques to obtain **transgenic** barley plants are still being developed. The authors' present knowledge on the endosperm-specific expression of storage proteins and the modulation of this expression by transcriptional activators is reviewed. Breeding strategies for altered protein quality and for proanthocyanidin-free malting barley are presented. Engineering of an improved malt enzyme, a heat stable (1-3, 1-4)-.beta.-**glucanase**, is described. The enzyme is expected to survive, like .alpha.-amylases, the kilning process and has been shown to act efficiently in the mashing process for the elimination of water-sol. .beta.-glucans which impede filtration of wort. The engineered enzyme is expressed in **transformed** aleurone protoplasts and secreted from these cells and thus shown to be operational in the tissue, where it is expected to work. Hormone-regulated promoters for the expression of genes acting during grain development and malting have been characterized. Prospects for the prodn. of polyhydroxyalkanoates and cyclodextrins in cereal grains are discussed.

L2 ANSWER 301 OF 323 CAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1994:50374 CAPLUS  
DOCUMENT NUMBER: 120:50374  
TITLE: In vitro anti-microbial activities of defense proteins and biotechnology  
AUTHOR(S): Melchers, Leo S.; Ponstein, Anne S.; Sela-Buurlage, Marianne B.; Vloemans, Sandra A.; Cornelissen, Ben J. C.  
CORPORATE SOURCE: MOGEN Int. NV, Leiden, 2333 CB, Neth.  
SOURCE: Developments in Plant Pathology (1993), 2 (Mechanisms

of Plant Defense Responses), 401-10

CODEN: DPPAEF; ISSN: 0929-1318

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The phenomenon of induced resistance in **plants** is accompanied by the induction of the synthesis of a large no. of proteins. It is demonstrated here that, among these proteins, the intracellular class I chitinases, .beta.-1,3-glucanases, and AP24 exhibit antifungal activity in vitro. In contrast, the class II isoforms of these induced proteins show limited or no antifungal activity. Furthermore, it is shown here, that in **transgenic plants** expressing modified forms of either a class I chitinase gene, a class I .beta.-1,3-glucanase gene, or an AP24 gene, these proteins are targeted extracellularly. The secreted proteins have retained their antifungal activity in vitro.

L2 ANSWER 302 OF 323 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1994:4815 CAPLUS

DOCUMENT NUMBER: 120:4815

TITLE: Hormonal and tissue-specific regulation of cellulase gene expression in abscission

AUTHOR(S): Tucker, M. L.; Matters, G. L.; Koehler, S. M.; Kemmerer, E. C.; Baird, S. L.; Sexton, R.

CORPORATE SOURCE: Plant Mol. Biol. Lab., ARS, Beltsville, MD, 20705, USA  
SOURCE: Current Plant Science and Biotechnology in Agriculture (1993), 16(Cellular and Molecular Aspects of the Plant Hormone Ethylene), 265-71

CODEN: CPBAE2; ISSN: 0924-1949

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Cellulase (endo-1,4-.beta.-D-**glucanase**) is one of several cell wall hydrolases playing a crit. role in many **plant** developmental processes. The authors have identified cDNA and genomic clones encoding a cellulase assocd. with bean leaf abscission. The tissue- and cell-specific accumulation of cellulase mRNA was examd. using RNA gel blots and in situ hybridization. In situ hybridization indicates that all cells in the abscission fracture plane, regardless of cell type, accumulate cellulase mRNA. Expts. with 2,5-norbornadiene, a competitive inhibitor of ethylene action, show that ethylene is required not only to initiate cellulase gene expression in abscission but also to maintain its expression. Auxin, in the presence of 5 .mu.L/L ethylene, inhibits the accumulation of cellulase mRNA. Deletions through the 5' upstream region of the bean cellulase gene were fused to a .beta.-glucuronidase (GUS) reporter gene. These promoter constructs can be analyzed in bean using a particle bombardment transient assay and in stably **transformed transgenic tomato plants**.

L2 ANSWER 303 OF 323 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 99

ACCESSION NUMBER: 1993:464271 CAPLUS

DOCUMENT NUMBER: 119:64271

TITLE: Activities of chitinase and .beta.-1,3-**glucanase** in tobacco **plants transformed** by TMV coat protein gene

AUTHOR(S): Du, Liangcheng; Li, Ying; Hu, Yunqian

CORPORATE SOURCE: Kunming Inst. Bot., Acad. Sin., Kunming, 650204, Peop. Rep. China

SOURCE: Yunnan Zhiwu Yanjiu (1993), 15(1), 107-9

CODEN: YCWCDP; ISSN: 0253-2700

DOCUMENT TYPE: Journal

LANGUAGE: Chinese

AB The coat protein gene of tobacco mosaic virus (TMV) was cloned in an Agrobacterium vector. Recombinant Agrobacterium cells were used to **transform tobacco plants**. **Transformed tobacco plants** showed higher activities of chitinase and .beta.-1,3-**glucanase**, as well as higher resistance to TMV.

✓ L2 ANSWER 304 OF 323 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1995:179618 CAPLUS  
 DOCUMENT NUMBER: 122:30202  
 TITLE: Biotechnology for the improvement of malting barley.  
 AUTHOR(S): Mannonen, Leena; Kurten, Ulrika; Ritala, Anneli;  
 Salmenkallio-Marttila, Marjatta; Hannus, Riitta;  
 Aspegren, Kristian; Teeri, Teemu; Kauppinen, Veli  
 CORPORATE SOURCE: Biotechnical Laboratory, VTT, Technical Research  
 Centre Finland, Espoo, Finland  
 SOURCE: Proceedings of the Congress - European Brewery  
 Convention (1993), 24TH, 85-93  
 CODEN: EBCPA6; ISSN: 0367-018X  
 DOCUMENT TYPE: Journal  
 LANGUAGE: English

AB A method for the **transformation** of barley was developed. The first application of this method for the genetic improvement of malting barley quality is the transfer of a gene coding for thermostable **.beta.-glucanase** that enhances modification of the malt and improves brewing. In the first phase, research has been focused on barley cell culture technol. and on development of the gene transfer methods. Direct embryogenesis through microspores or immature embryos was used to obtain target material for **transformation**. Electroporation and particle bombardment have led to **transgenic** cell cultures and **plants**. Two **.alpha.-amylase** premotors were isolated from malting barley and linked to the *Trichoderma reesei* eg11 **.beta.-glucanase** gene to form gene transfer vectors.

L2 ANSWER 305 OF 323 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1993:577783 CAPLUS  
 DOCUMENT NUMBER: 119:177783  
 TITLE: Plant chitinase cDNA and gene for use in increasing resistance to fungal pathogens.  
 INVENTOR(S): Mikkelsen, Joern Dalgaard; Bojsen, Kirsten; Nielsen, Klaus K.; Berglund, Lars  
 PATENT ASSIGNEE(S): Danisco A/S, Den.  
 SOURCE: PCT Int. Appl., 253 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9217591	A1	19921015	WO 1992-DK108	19920407
W: AU, CA, CS, HU, JP, PL, RU, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
CA 2048696	AA	19921009	CA 1991-2048696	19910806
CA 2048477	AA	19921009	CA 1991-2048477	19910808
CA 2106309	AA	19921009	CA 1992-2106309	19920407
AU 9216599	A1	19921102	AU 1992-16599	19920407
AU 659455	B2	19950518		
EP 579709	A1	19940126	EP 1992-909133	19920407
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 06507070	T2	19940811	JP 1992-508462	19920407
HU 67059	A2	19950130	HU 1993-2829	19920407
PRIORITY APPLN. INFO.:			DK 1991-616	19910408
			US 1991-739805	19910805
			WO 1992-DK108	19920407

AB A cDNA and the gene for chitinase 4 of sugar beet is cloned and characterized, for use in increasing resistance of plants to fungal pathogens. The enzyme has chitinase and lysozyme activities and so is effective in inhibiting growth of chitinous fungi. It is used in

combination with other chitinases and glucanases. Chitinases 2, 3, and 4 of sugar beet leaves were purified by std. methods. A combination of chitinase and .beta.-1,3-glucanase was effective in inhibiting growth of Cercospora. A cDNA for chitinase 4 was cloned from a sugar beet leaf cDNA bank in .lambda.ZAP by screening with an amino acid sequence-derived probe and used to screen a Sau3A partial digest library in .lambda.EMBL3. The genes for other chitinases are cloned and the introduction of the gene into plants and the prepn. of analogs are discussed.

✓ L2 ANSWER 306 OF 323 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1993:76107 CAPLUS  
 DOCUMENT NUMBER: 118:76107  
 TITLE: Cloning of cDNA for novel .beta.-1,3-glucanase activity of soybean  
 INVENTOR(S): Sass, Catherine; Leguay, Jean Jacques; Grison, Rene; Toppan, Alain  
 PATENT ASSIGNEE(S): Elf Sanofi, Fr.; Societe Nationale Elf Aquitaine  
 SOURCE: PCT Int. Appl., 80 pp.  
 CODEN: PIXXD2  
 DOCUMENT TYPE: Patent  
 LANGUAGE: French  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9216632	A1	19921001	WO 1992-FR268	19920325
W: AU, CA, JP, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LU, MC, NL, SE				
FR 2674538	A1	19921002	FR 1991-3588	19910325
FR 2674538	B1	19941118		
AU 9216467	A1	19921021	AU 1992-16467	19920325
AU 662139	B2	19950824		
EP 536364	A1	19930414	EP 1992-908870	19920325
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
JP 06500237	T2	19940113	JP 1992-508030	19920325
US 5477001	A	19951219	US 1993-966187	19930125
PRIORITY APPLN. INFO.:			FR 1991-3588	19910325
			WO 1992-FR268	19920325

AB A cDNA encoding a .beta.-1,3-glucanase of soybean is cloned and expressed in **transgenic plants**. The enzyme is useful in increasing resistance of **plants** to fungal pathogens and in biomass conversion. A cDNA bank from soybean callus in .lambda.gtl1 was screened with antibody to the corresponding tobacco enzyme. Expression of the cDNA in Escherichia coli resulted in the accumulation of three forms of the enzyme; the differences between them was not as a result of N-terminal processing. The cDNA was placed under control of the cauliflower mosaic virus 35S promoter and introduced into tobacco by Agrobacterium-mediated **transformation** and integration and expression of the **transforming DNA** were demonstrated. **Plants** derived from the R0 generation were shown to be significantly more resistant to infection by the fungus Chalara elegans than control **plants**.

L2 ANSWER 307 OF 323 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1992:606329 CAPLUS  
 DOCUMENT NUMBER: 117:206329  
 TITLE: Transgenic plants having a modified carbohydrate content  
 INVENTOR(S): Van den Elzen, Peter J. M.; Pen, Jan; Hoekema, Andreas; Sijmons, Peter Christiaan; Van Ooyen, Albert J. J.; Rietveld, Krijn; Quax, Wilhelmus Johannes  
 PATENT ASSIGNEE(S): Gist-Brocades N.v., Neth.; Mogen International N.v.  
 SOURCE: PCT Int. Appl., 46 pp.

CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9205259	A1	19920402	WO 1991-NL171	19910913
W: AU, CA, JP, US				
CA 2072656	AA	19920314	CA 1991-2072656	19910913
EP 479359	A1	19920408	EP 1991-202355	19910913
EP 479359	B1	19981230		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AU 9186514	A1	19920415	AU 1991-86514	19910913
AU 656920	B2	19950223		
JP 05502591	T2	19930513	JP 1991-517456	19910913
AT 175238	E	19990115	AT 1991-202355	19910913
US 5705375	A	19980106	US 1994-253575	19940603
PRIORITY APPLN. INFO.:			EP 1990-202434	19900913
			WO 1991-NL171	19910913
			US 1992-849422	19920612

AB A method for producing plants or plant organs with modified carbohydrate content comprises prepg. a transgenic plant expressing a plant polysaccharide-degrading enzyme gene. A binary vector, pMOG437, contg. the *Bacillus licheniformis* .alpha.-amylase gene and *Aspergillus niger* glucoamylase gene under the control of the tuber-specific class I patatin promoter, was prepd. Transgenic *Solanum tuberosum* cv. Desiree contg. these genes were produced by std. methods. .alpha.-Amylase and glucoamylase activity were found only in the tubers. A higher content of sol. sugars was found in the transgenic tubers relative to control tubers.

L2 ANSWER 308 OF 323 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1992:628425 CAPLUS  
DOCUMENT NUMBER: 117:228425  
TITLE: Plant-associated bacteria expressing plant pathogenesis-related protein genes and their use in protection of plants from pathogens  
INVENTOR(S): Gaffney, Thomas D.; Lam, Stephen T.  
PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.  
SOURCE: Eur. Pat. Appl., 37 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 474601	A2	19920311	EP 1991-810690	19910829
EP 474601	A3	19921028		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
CA 2050743	AA	19920308	CA 1991-2050743	19910905
AU 9183720	A1	19920312	AU 1991-83720	19910906
AU 646492	B2	19940224		
ZA 9107091	A	19920527	ZA 1991-7091	19910906
JP 05236968	A2	19930917	JP 1991-254560	19910906
PRIORITY APPLN. INFO.:			US 1990-579457	19900907

AB Genes comprising bacterial regulatory sequences fused to plant pathogenesis-related protein genes are described. Soil bacteria expressing these genes can be introduced into the rhizosphere in order to provide protection against pathogenic microorganisms. Thus, transgenic *Pseudomonas fluorescens* producing cucumber chitinase or tobacco basic .beta.-1,3-glucanase were applied to cotton seeds.

This treatment resulted in protection from post-emergence damping-off caused by *Rhizoctonia solani*.

L2 ANSWER 309 OF 323 USPATFULL  
ACCESSION NUMBER: 92:99044 USPATFULL  
TITLE: Endo-1,4-.beta.-glucanase gene and its use in plants  
INVENTOR(S): Bennett, Alan B., Davis, CA, United States  
Fischer, Robert L., El Cerrito, CA, United States  
Lashbrook, Coralie, Dixon, CA, United States  
Giovannoni, James, San Francisco, CA, United States  
PATENT ASSIGNEE(S): The Regents of the University of California, Oakland, CA, United States (U.S. corporation)

	NUMBER	KIND	DATE
PATENT INFORMATION:	US 5168064		19921201
APPLICATION INFO.:	US 1990-511417		19900420 (7)
DOCUMENT TYPE:	Utility		
FILE SEGMENT:	Granted		
PRIMARY EXAMINER:	Fox, David T.		
LEGAL REPRESENTATIVE:	Townsend and Townsend		
NUMBER OF CLAIMS:	2		
EXEMPLARY CLAIM:	1		
NUMBER OF DRAWINGS:	2 Drawing Figure(s); 1 Drawing Page(s)		
LINE COUNT:	967		

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The present invention provides a method for reducing fruit softening and cell wall polysaccharide degradation by inhibiting endo-1,4-.beta.-glucanase activity using antisense DNA constructions.

✓ L2 ANSWER 310 OF 323 AGRICOLA DUPLICATE 100  
ACCESSION NUMBER: 92:90630 AGRICOLA  
DOCUMENT NUMBER: IND92052794  
TITLE: Suppression of beta-1,3-glucanase transgene expression in homozygous plants.  
AUTHOR(S): Carvalho, F. de; Gheysen, G.; Kushnir, S.; Montagu, M. van; Inze, D.; Castresana, C.  
CORPORATE SOURCE: Universiteit Gent, Gent, Belgium  
AVAILABILITY: DNAL (QH506.E46)  
SOURCE: The EMBO journal - European Molecular Biology Organization, July 1992. Vol. 11, No. 7. p. 2595-2602  
Publisher: Oxford, Eng. : IRL Press.  
CODEN: EMJODG; ISSN: 0261-4189  
NOTE: Includes references.  
DOCUMENT TYPE: Article  
FILE SEGMENT: Non-U.S. Imprint other than FAO  
LANGUAGE: English

AB A chimeric construct containing the *Nicotiana plumbaginifolia* beta-1,3-glucanase gnl gene was introduced into *Nicotiana tabacum* SR1 to produce high levels of the enzyme constitutively. We determined that the Gnl protein represents a basic beta-1,3-glucanase isoform which accumulates into the vacuoles of the transgenic plants. Analysis of the progeny of the transgenic plant with the highest levels of gnl expression revealed an unexpected phenomenon of gene suppression. Plants hemizygous for the T-DNA locus contained high levels of gnl mRNA and exhibited a 14-fold higher beta-1,3-glucanase activity than untransformed plants. However, the expression of gnl was completely suppressed in the homozygous plants: no corresponding mRNA or protein could be detected. This suppression mechanism occurs at a post-transcriptional level and is under developmental control. In addition, by generating haploid plants we found that this silencing phenomenon is not dependent on allelic interaction between T-DNA copies present at the same locus of homologous chromosomes, but rather is correlated with the transgene dose in the

plant genome. We postulate that high doses of GN1 protein relative to the level(s) of other still unknown plant products could trigger the cellular processes directed to suppress gn1 expression.

L2 ANSWER 311 OF 323 AGRICOLA DUPLICATE 101  
ACCESSION NUMBER: 92:112708 AGRICOLA  
DOCUMENT NUMBER: IND92067944  
TITLE: The function of vacuolar beta-1,3-glucanase investigated by antisense transformation. Susceptibility of transgenic Nicotiana sylvestris plants to Cercospora nicotianae infection.  
AUTHOR(S): Neuhaus, J.M.; Flores, S.; Keefe, D.; Ahl-Goy, P.; Meins, F. Jr  
CORPORATE SOURCE: Friedrich Miescher-Institut, Switzerland  
AVAILABILITY: DNAL (QK710.P62)  
SOURCE: Plant molecular biology : an international journal on molecular biology, biochemistry and genetic engineering, Aug 1992. Vol. 19, No. 5. p. 803-813  
Publisher: Dordrecht : Kluwer Academic Publishers.  
ISSN: 0167-4412  
NOTE: Includes references.  
DOCUMENT TYPE: Article  
FILE SEGMENT: Non-U.S. Imprint other than FAO  
LANGUAGE: English  
AB Vacuolar class I beta-1,3-glucanases (EC 3.2.1.39) are believed to be important in the induced defense reaction of plants to fungal infection. We used antisense transformation to test this hypothesis and to identify other possible physiological functions of this enzyme. Nicotiana sylvestris plants were transformed with antisense constructions containing the region from position 27 to 608 of the coding sequence of the basic, vacuolar beta-1,3-glucanase gene GLA of tobacco regulated by cauliflower mosaic virus 35S RNA expression signals. Plants homozygous for this transgene showed a marked, ca. 20-fold reduction in the constitutive expression of class I beta-1,3-glucanase antigen in their leaves. RNA blot analysis indicated that the antisense plants expressed low levels of the sense transcript of the host beta-1,3-glucanase gene and the antisense transcript of the transgene. Immune blot analysis of plant extracts indicated that only expression of the N. sylvestris homologue of class I tobacco beta-1,3-glucanase and not the acidic, class II isoforms of the enzyme was blocked in the antisense plants. Class I isoforms of beta-1,3-glucanase and chitinase were coordinately induced in leaves of untransformed and empty-vector-transformed N. sylvestris plants treated with ethylene or infected with the fungal leaf pathogen Cercospora nicotianae. In antisense plants, chitinase but not beta-1,3-glucanase was induced under these conditions indicating that antisense transformation effectively blocks constitutive as well as induced expression of class I beta-1,3-glucanase. Under greenhouse conditions, antisense plants developed normally and were fertile. The plants did not exhibit increased susceptibility to C. nicotianae infection. These results suggest that expression of the beta-1,3-glucanase isoform blocked by antisense transformation is not necessary for 'house-keeping' functions of N. sylvestris nor defense against the fungal pathogen tested.

L2 ANSWER 312 OF 323 AGRICOLA DUPLICATE 102  
ACCESSION NUMBER: 92:115006 AGRICOLA  
DOCUMENT NUMBER: IND92070251  
TITLE: Premature dissolution of the microsporocyte callose wall causes male sterility in transgenic tobacco.  
AUTHOR(S): Worrall, D.; Hird, D.L.; Hodge, R.; Paul, W.; Draper, J.; Scott, R.

CORPORATE SOURCE: University of Leicester, Leicester, UK  
 AVAILABILITY: DNAL (QK725.P532)  
 SOURCE: The Plant cell, July 1992. Vol. 4, No. 7. p. 759-771  
 Publisher: Rockville, Md. : American Society of Plant  
 Physiologists.  
 ISSN: 1040-4651  
 NOTE: Includes references.  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: U.S. Imprints not USDA, Experiment or Extension  
 LANGUAGE: English  
 AB Male sterility in a petunia cytoplasmic male sterile line has been attributed to the early appearance of active callase, a beta-1,3-glucanase, in the anther locule. This leads to premature dissolution of the callose walls surrounding the microsporogenous cells. We have mimicked this aspect of the petunia line in **transgenic** tobacco by engineering the secretion of a modified pathogenesis-related vacuolar beta-1,3-glucanase from the tapetum prior to the appearance of callase activity in the locule. Plants expressing the modified glucanase from tapetum-specific promoters exhibited reduced male fertility, ranging from complete to partial male sterility. Callose appearance and distribution are normal in the male sterile **transgenic plants** up to prophase I, whereupon callose is prematurely degraded. Meiosis and cell division occur normally. The resultant microspores have an abnormally thin cell wall that lacks sculpturing. The tapetum shows hypertrophy. Male sterility is probably caused by bursting of the aberrant microspores at a time corresponding to microspore release. These results demonstrate that premature callose degradation is sufficient to cause male sterility and suggest that callose is essential for the formation of a normal microspore cell wall.

L2 ANSWER 313 OF 323 AGRICOLA DUPLICATE 103  
 ACCESSION NUMBER: 1998:7573 AGRICOLA  
 DOCUMENT NUMBER: IND20612762  
 TITLE: Constitutive expression of stress-inducible genes, including pathogenesis-related 1 protein gene in a transgenic interspecific hybrid of Nicotiana glutinosa X Nicotiana debneyi.  
 AUTHOR(S): Ohashi, Y.; Ohshima, M.; Itoh, H.; Matsuoka, M.; Watanabe, S.; Murakami, T.; Hosokawa, D.  
 CORPORATE SOURCE: National Institute of Agrobiological Resources, Ibaraki, Japan.  
 AVAILABILITY: DNAL (450 P699)  
 SOURCE: Plant and cell physiology, Mar 1992. Vol. 33, No. 2. p. 177-187  
 Publisher: Kyoto, Japan : Japanese Society of Plant Physiologists.  
 CODEN: PCPHA5; ISSN: 0032-0781  
 NOTE: Includes references  
 PUB. COUNTRY: Japan  
 DOCUMENT TYPE: Article  
 FILE SEGMENT: Non-U.S. Imprint other than FAO  
 LANGUAGE: English  
 AB Constitutive expression of a type of stress-inducible proteins including pathogenesis-related (PR) 1 protein and ubiquitin-related protein in an interspecific hybrid of Nicotiana glutinosa X Nicotiana debneyi was noted. In the two parental species and in tobacco, these proteins are not expressed in healthy plants but they are induced by stresses such as the formation of local lesions after viral infection and treatment of salicylic acid. A second type of stress-inducible genes, such as the genes for basic beta-1,3-glucanase and putative proteinase inhibitor were regulated normally, and were not expressed constitutively in the hybrid. In the **transgenic** hybrid, into which a chimeric gene consisting of 5' upstream of tobacco PR1a gene and beta-glucuronidase (GUS) gene was introduced, very high GUS activity was expressed



constitutively even at healthy state. An abnormal response by this hybrid to plant hormones was also noted. A possible mechanism for the unregulated expression of the stress-inducible genes in the interspecific hybrid is discussed.

L2 ANSWER 314 OF 323 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.  
 ACCESSION NUMBER: 1992:467997 BIOSIS  
 DOCUMENT NUMBER: BR43:89347  
 TITLE: STUDY OF THE PHYSIOLOGICAL FUNCTIONS OF BETA-1 3  
**GLUCANASE IN ANTISENSE TOBACCO NICOTIANA-TABACUM  
 TRANSFORMED PLANTS.**  
 AUTHOR(S): BEFFA R S; MEINS F JR  
 CORPORATE SOURCE: FRIEDRICH MIESCHER-INST., CH-4002 BASEL, SWITZ.  
 SOURCE: 24TH ANNUAL MEETING OF THE SWISS SOCIETIES FOR EXPERIMENTAL  
 BIOLOGY (USGEB/USSBE), BASEL, SWITZERLAND, MARCH 19-20,  
 1992. EXPERIENTIA (BASEL), (1992) 48 (ABSTR ), A9.  
 CODEN: EXPEAM. ISSN: 0014-4754.  
 DOCUMENT TYPE: Conference  
 FILE SEGMENT: BR; OLD  
 LANGUAGE: English

L2 ANSWER 315 OF 323 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1992:189131 CAPLUS  
 DOCUMENT NUMBER: 116:189131  
 TITLE: Novel signal sequences for targetting of heterologous  
 proteins to plant vacuoles  
 INVENTOR(S): Boller, Thomas; Neuhaus, Jean Marc; Ryals, John  
 PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.  
 SOURCE: Eur. Pat. Appl., 81 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: German  
 FAMILY ACC. NUM. COUNT: 1  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 462065	A2	19911218	EP 1991-810430	19910606
EP 462065	A3	19920520		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
CA 2044476	AA	19911216	CA 1991-2044476	19910613
AU 9178415	A1	19911219	AU 1991-78415	19910614
AU 653526	B2	19941006		
BR 9102461	A	19920121	BR 1991-2461	19910614
HU 58758	A2	19920330	HU 1991-1994	19910614
JP 04229182	A2	19920818	JP 1991-170549	19910615
US 6054637	A	20000425	US 1994-329799	19941026
PRIORITY APPLN. INFO.:			CH 1990-2007	19900615
			US 1991-715521	19910614

AB Peptides responsible for targetting proteins to plant vacuoles and DNA sequences encoding them are described for use in plant genetic engineering. The peptides are from the C-terminal regions of chitinases and glucanases. A cDNA for tobacco chitinase was cloned by antibody screening of an expression bank and the corresponding genomic sequence was cloned using this sequence as a probe. A corresponding cDNA for the pathogen- induced chitinase of cucumber was cloned by screening with amino acid sequence- derived oligonucleotide probes. A series of deletion analogs of the cDNAs were prepd. and introduced into tobacco callus. The cellular localization of the various derivs. in regenerated plants was detd.

7 L2 ANSWER 316 OF 323 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1992:146144 CAPLUS  
 DOCUMENT NUMBER: 116:146144

TITLE: Control of plant pathogens with compositions comprising lytic peptides and hydrolytic enzymes and transgenic plants producing such compositions

INVENTOR(S): Ryals, John A.; Gay, Philippe Bernard; Ahl Goy, Patricia A.; Garcia-Olmedo, Francisco

PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.

SOURCE: Eur. Pat. Appl., 35 pp.  
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 448511	A1	19910925	EP 1991-810144	19910304
EP 448511	B1	20010718		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AT 203141	E	20010815	AT 1991-810144	19910304
ES 2161210	T3	20011201	ES 1991-810144	19910304
CA 2037806	AA	19910913	CA 1991-2037806	19910308
JP 04217903	A2	19920807	JP 1991-69129	19910308
IL 97480	A1	19960618	IL 1991-97480	19910308
NO 9100947	A	19910913	NO 1991-947	19910311
AU 9172797	A1	19910919	AU 1991-72797	19910311
AU 655579	B2	19950105		
HU 56703	A2	19911028	HU 1991-788	19910311
ZA 9101766	A	19911127	ZA 1991-1766	19910311

PRIORITY APPLN. INFO.: US 1990-491801 A 19900312

AB A compn. for controlling plant pathogens comprises .gtoreq.1 cell membrane-degrading components, e.g. defensins, and .gtoreq.1 hydrolytic enzymes such as chitinase. Chitinase and .beta.-1,3-glucanase of C2H2-treated bean leaves were purified and combined with various synthetic lytic peptides, e.g. barley thionin .beta. or melittin. These compns. inhibited the growth of Septoria nodorum. Binary vectors contg. a gene for one of the enzymes or for a lytic peptide were prepd. and procedures for transformation of plant cells and regeneration of transgenic plants were described.

L2 ANSWER 317 OF 323 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1991:649587 CAPLUS

DOCUMENT NUMBER: 115:249587

TITLE: Fungus-resistant plants, process for obtaining fungus-resistant plants, and recombinant polynucleotides for use therein

INVENTOR(S): Cornelissen, Bernardus Johannes Clemens; Melchers, Leo Sjoerd; Meulenhoff, Elisabeth Josine Sophie; Van Roekel, Jeroen Sebastiaan Charles; Sela-Buurlage, Marianne Beatrix; Vloemans, Alexandra Aleida; Woloshuk, Charles Peter; Bol, John Ferdinand; Linthorst, Hubertus Josephus Maria

PATENT ASSIGNEE(S): Mogen International N. V., Neth.; Rijksuniversiteit Leiden

SOURCE: Eur. Pat. Appl., 55 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 440304	A1	19910807	EP 1991-200191	19910130

EP 440304	B1	20001129		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
IL 97020	A1	20001206	IL 1991-97020	19910124
CA 2035134	AA	19910731	CA 1991-2035134	19910129
AU 9170034	A1	19910801	AU 1991-70034	19910129
AU 654471	B2	19941110		
JP 08280283	A2	19961029	JP 1991-216681	19910129
AT 197815	E	20001215	AT 1991-200191	19910130
ES 2152213	T3	20010201	ES 1991-200191	19910130
US 5670706	A	19970923	US 1993-47413	19930419
US 6066491	A	20000523	US 1994-229050	19940418
US 6087560	A	20000711	US 1997-801563	19970218
PRIORITY APPLN. INFO.:			NL 1990-222	A 19900130
			US 1991-647831	B3 19910129
			US 1993-47413	A1 19930419

AB Fungus-resistant **plants** which overexpress a chitinase and/or a .beta.-1,3-**glucanase** gene, esp. which overexpress genes modified to cause localization of these enzymes to the apoplastic space, are prepd. The genes for *Ptiunia hybrida* extracellular chitinase, for *Nicotiana tabacum* intracellular chitinase and both intra- and extracellular .beta.-1,3-**glucanase** were cloned and sequenced. Deletion of a small no. of C-terminal amino acids of the intracellular forms of these enzymes resulted in their secretion into the apoplastic space. Antifungal activity of the enzymes correlated with expression of the (modified) intracellular form of the enzyme. Expression plasmids contg. these genes were prepd. and **transgenic** tobacco **plants** expressing the genes were produced.

L2 ANSWER 318 OF 323 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.

ACCESSION NUMBER: 1992:48619 BIOSIS

DOCUMENT NUMBER: BA93:28594

TITLE: MODIFICATION OF GENE EXPRESSION IN RIPENING FRUIT.

AUTHOR(S): SPEIRS J; BRADY C J

CORPORATE SOURCE: DIV. HORTICULTURE, CSIRO, NORTH RYDE, NSW 2113, AUST.

SOURCE: AUST J PLANT PHYSIOL, (1991) 18 (5), 519-532.

CODEN: AJPPCH. ISSN: 0310-7841.

FILE SEGMENT: BA; OLD

LANGUAGE: English

AB Fruit ripening is a coordinated series of biochemical changes that renders the fruit attractive to eat. The fruit may soften, develop colour, change starch or acid into sugar, become flavoursome, produce more ethylene, increase in sensitivity to ethylene, and respire more rapidly. This syndrome is under contemporary genetic control as illustrated by mutants with fruit that develop normally but lack the ability to ripen, or are deficient or modified in an aspect of ripening. Molecular analysis has revealed changes in gene expression in ripening avocado, tomato, pear and apple fruits. Genes encoding .beta.-1, 4-**glucanase** (avocado), polygalacturonase (tomato) and trypsin inhibitor (tomato) are among those whose expression increases through ripening. To modify the softening of tomato fruits, antisense constructs with constitutive promoters have been used to reduce the apparent expression of the polygalacturonase gene. The experiments confirmed a role for polygalacturonase in fruit softening but a need for other inputs was also indicated. In experiments using chimaeric genes, the coding sequence of polygalacturonase linked to a fruit-specific and ethylene-sensitive promoter was introduced into the rin tomato genome. Rin **plants** have fruit which do not ripen or accumulate polygalacturonase. The **transformed** rin fruit accumulated polygalacturonase but did not ripen or soften. This experiment confirms conclusions drawn from the use of antisense constructs that polygalacturonase action is not the sole determinant of texture changes in ripening tomatoes. Ethylene has a key role throughout ripening. The molecular biology of ethylene production and perception is gradually unfolding. A cDNA and ACC synthase for zucchini, a small gene family whose expression correlated with Ethylene Forming Enzyme (EFE) activity, and a

consensus sequence in promoters that are ethylene sensitive have all been described. There is accumulating evidence that some of these sequences and the polygalacturonase sequence are conserved between species, and this will be useful in extending the presently available information.

L2 ANSWER 319 OF 323 CAPLUS COPYRIGHT 2002 ACS  
 ACCESSION NUMBER: 1991:201132 CAPLUS  
 DOCUMENT NUMBER: 114:201132  
 TITLE: cDNA cloning of genes for pathogenesis-related proteins for the preparation of transgenic disease-resistant plants  
 INVENTOR(S): Ryals, John A.; Alexander, Danny C.; Goodman, Robert M.; Meins, Frederick; Payne, George B.; Stinson, Jeffrey R.; Neuhaus, Jean Marc; Moyer, Mary B.; Ward, Eric Russell; Williams, Shericca Cherrer  
 PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.  
 SOURCE: Eur. Pat. Appl., 77 pp.  
 CODEN: EPXXDW  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 7  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 392225	A2	19901017	EP 1990-105336	19900321
EP 392225	A3	19910925		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE				
CA 2012778	AA	19900924	CA 1990-2012778	19900322
AU 9052183	A1	19900927	AU 1990-52183	19900323
AU 642865	B2	19931104		
ZA 9002250	A	19901128	ZA 1990-2250	19900323
HU 60770	A2	19921028	HU 1990-1820	19900323
JP 03035783	A2	19910215	JP 1990-76564	19900326
PRIORITY APPLN. INFO.:		US 1989-329018	A	19890324
		US 1989-368672	A	19890620
		US 1989-425504	A	19891020

AB CDNAs encoding pathogenesis-related proteins of tobacco and cucumber are cloned and characterized and expression vectors using strong constitutive promoters for the expression of the cDNAs in transgenic plants are constructed. Plants expressing these genes are more resistant to disease than their parents (no data). Novel methods for the cloning of regulated genes using polymerase chain reaction and biotinylated nucleic acids are also described. The cDNAs for the pathogenesis-related proteins described were cloned using amino acid sequence-derived oligonucleotide probes. Expression vectors, including binary vectors, were constructed for both sense and antisense orientations of the cDNA using the cauliflower mosaic virus 35S promoter(CaMV35S) or the promoter from the gene for the small subunit of RUBISCO. The expression of these genes in transgenic tobacco plants was demonstrated, as was the crossing required to generate homozygotic plants and seed. The expression of these genes in cell culture of monocotyledonous and dicotyledonous plants is also demonstrated.

L2 ANSWER 320 OF 323 AGRICOLA DUPLICATE 104  
 ACCESSION NUMBER: 92:32088 AGRICOLA  
 DOCUMENT NUMBER: IND92012098  
 TITLE: Tissue-specific and pathogen-induced regulation of a Nicotiana plumbaginifolia beta-1,3-glucanase gene.  
 AUTHOR(S): Castresana, C.; Carvalho, F. de; Gheysen, G.; Habets, M.; Inze, D.; Montagu, M. van  
 CORPORATE SOURCE: Rijksuniversiteit Gent, Gent, Belgium  
 AVAILABILITY: DNAL (QK725.P532)  
 SOURCE: The Plant cell, Dec 1990. Vol. 2, No. 12. p. 1131-1143

Publisher: Rockville, Md. : American Society of Plant  
Physiologists.  
ISSN: 1040-4651  
Includes references.

NOTE:

DOCUMENT TYPE:

Article

FILE SEGMENT:

U.S. Imprints not USDA, Experiment or Extension

LANGUAGE:

English

AB The *Nicotiana plumbaginifolia* gnl gene encoding a beta-1,3-  
**glucanase** isoform has been characterized. The gnl product  
represents an isoform distinct from the previously identified tobacco  
3-1,3-glucanases. By expressing gnl in *Escherichia coli*, we have  
determined directly that the encoded protein does, indeed, correspond to a  
6-1,3-**glucanase**. In *N. plumbaginifolia*, gnl was found to be  
expressed in roots and older leaves. **Transgenic** tobacco  
**plants** containing the 5'-noncoding region of gnl fused to  
beta-glucuronidase (GUS) reporter gene also showed maximum levels of GUS  
activity in roots and older leaves. No detectable activity was present in  
the upper part of the **transgenic plants** with the  
exception of stem cells at the bases of emerging shoots. The expression  
conferred by the gnl promoter was differentially induced in response to  
specific **plant** stress treatments. Studies of three **plant**  
-bacteria interactions showed high levels of GUS activity when infection  
resulted in a hypersensitive reaction. Increased gene expression was  
confined to cells surrounding the necrotic lesions. The observed  
expression pattern suggests that the characterized beta-1,3-  
**glucanase** plays a role both in **plant** development and in  
the defense response against pathogen infection.

L2 ANSWER 321 OF 323 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1990:418947 CAPLUS

DOCUMENT NUMBER: 113:18947

TITLE: Production of male-sterile plants and seeds by  
recombinant DNA methods

INVENTOR(S): Mariani, Celestina; Leemans, Jan; De Greef, Willy; De  
Beuckeleer, Marc

PATENT ASSIGNEE(S): Plant Genetic Systems N. V., Belg.

SOURCE: PCT Int. Appl., 86 pp.

CODEN: PIXXD2

DOCUMENT TYPE:

Patent

LANGUAGE:

English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 8910396	A1	19891102	WO 1989-EP495	19890427
W: AU, DK, FI, HU, JP, US				
EP 344029	A1	19891129	EP 1989-401194	19890426
EP 344029	B1	19970129		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
EP 737749	A1	19961016	EP 1996-107004	19890426
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
AT 148498	E	19970215	AT 1989-401194	19890426
ES 2097745	T3	19970416	ES 1989-401194	19890426
AU 8935371	A1	19891124	AU 1989-35371	19890427
AU 621113	B2	19920305		
HU 52553	A2	19900728	HU 1989-2763	19890427
HU 217413	B	20000128		
ZA 8903136	A	19901228	ZA 1989-3136	19890427
CA 1340324	A1	19990119	CA 1989-597953	19890427
IL 90095	A1	19991028	IL 1989-90095	19890427
IL 117780	A1	19991028	IL 1989-117780	19890427
JP 2000037146	A2	20000208	JP 1999-206912	19890427
JP 3020530	B2	20000315	JP 1989-504514	19890427

DK 8906684	A	19900228	DK 1989-6684	19891227
US 6372967	B1	20020416	US 1993-27580	19930305
US 5652354	A	19970729	US 1995-485792	19950607
US 6316699	B1	20011113	US 1995-485793	19950607
US 6320097	B1	20011120	US 1995-485788	19950607
US 6344598	B1	20020205	US 1995-485511	19950607
AU 9652245	A1	19960926	AU 1996-52245	19960514
AU 9931248	A1	19990819	AU 1999-31248	19990525

PRIORITY APPLN. INFO.:

GB 1988-10120	A	19880428
EP 1989-401194	A3	19890426
IL 1989-90095	A3	19890427
JP 1989-504514	A3	19890427
WO 1989-EP495	A	19890427
US 1989-449901	B1	19891122
US 1993-27580	A3	19930305
AU 1996-52245	A3	19960514

AB Male-sterile plants and seed are produced from plant cells transformed with a gene that disturbs the metab., function, or development of the stamen. The 5' flanking region of the Nicotiana tabacum anther-specific gene TA29gene was cloned and fused to gene 4 of Agrobacterium T-DNA. Gene 4 encodes isopentenyl transferase, the overexpression of which causes enhanced prodn. of cytokinin, which disturbs metab. and organogenesis of the tapetum cells.). The plasmid contg. this construct was used to prep. transgenic tobacco plants by std. techniques. No functional tapetum cells were found in the anthers of the flowers of these transgenic tobacco plants.

L2 ANSWER 322 OF 323 CAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1990:586056 CAPLUS

DOCUMENT NUMBER: 113:186056

TITLE: Chemically regulatable plant genes and their uses

INVENTOR(S): Ryals, John; Montoya, Alice; Harms, Christian; Duesing, John; Sperisen, Christoph; Meins, Fred; Payne, George

PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.

SOURCE: Eur. Pat. Appl., 118 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 7

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 332104	A2	19890913	EP 1989-103888	19890306
EP 332104	A3	19910320		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
FI 8901054	A	19890909	FI 1989-1054	19890306
DD 283647	A5	19901017	DD 1989-326307	19890306
IL 89495	A1	19950831	IL 1989-89495	19890306
DK 8901098	A	19890909	DK 1989-1098	19890307
NO 8900972	A	19890911	NO 1989-972	19890307
AU 8931080	A1	19890914	AU 1989-31080	19890307
AU 617433	B2	19911128		
ZA 8901726	A	19891129	ZA 1989-1726	19890307
HU 54417	A2	19910228	HU 1989-1115	19890307
PL 162317	B1	19930930	PL 1989-278117	19890307
RU 2130491	C1	19990520	RU 1989-4613725	19890307
JP 02009377	A2	19900112	JP 1989-55963	19890308

PRIORITY APPLN. INFO.:

US 1988-165667	A	19880308
US 1989-305566	A	19890206

AB Plant genes that respond to external chem. stimuli, by induction or repression, are cloned, characterized, and described. The genes encode pathogenesis-related proteins. The promoters from these genes are useful

for the regulation of foreign genes (e.g. conferring insect resistance or herbicide tolerance) in transgenic plants. A genomic clone for a pathogenesis-related protein of tobacco was cloned using an oligonucleotide probe derived from the amino acid sequence of the protein. The gene was characterized and the 5' regions isolated. Constructs using different lengths of this region were fused to a .beta.-glucuronidase gene and the expression of these constructs in response to chem. (salicylic acid or methylbenzothiodiazole carboxylate) or pathogen (tobacco mosaic virus) induction in transgenic tobacco plants studied. There was considerable variation in efficiency of induction from one plant to another but plants transformed with plasmid pCIB272 showed strong induction by chem. stimuli. Induction by chem. stimuli was comparable to induction by the pathogen.

L2 ANSWER 323 OF 323 CAPLUS COPYRIGHT 2002 ACS DUPLICATE 105

ACCESSION NUMBER: 1989:418497 CAPLUS

DOCUMENT NUMBER: 111:18497

TITLE: Cauliflower mosaic virus gene VI causes growth suppression, development of necrotic spots and expression of defence-related genes in transgenic tobacco plants

AUTHOR(S): Takahashi, Hideki; Shimamoto, Ko; Ehara, Yoshio

CORPORATE SOURCE: Fac. Agric., Tohoku Univ., Sendai, 980, Japan

SOURCE: Molecular and General Genetics (1989), 216(2-3), 188-94

CODEN: MGGEAE; ISSN: 0026-8925

DOCUMENT TYPE: Journal

LANGUAGE: English

AB In order to study possible functions of the inclusion body matrix protein (IBMP) encoded by gene VI of cauliflower mosaic virus (CaMV), the XbaI fragment contg. the gene VI of a Japanese strain of CaMV (CaMV S-Japan) was transferred to tobacco plants by Ti mediated transformation. Eight out of 18 kanamycin resistant plants (40%) expressed detectable levels of IBMP. Those transgenic plants expressing IBMP produced leaves with light green color, and their growth was suppressed as compared with control plants. Symptom-like necrotic spots also appeared on the leaves and stems of the mature transgenic plants. Furthermore, in these transgenic plants, pathogenesis-related proteins 1a, 1b and 1c were highly expressed and the activity of 1,3-.beta.-glucanase was increased up to eightfold. From these results, the authors concluded that expression of the IBMP is assocd. with symptom development.